

# W5YI

America's Oldest Ham Radio Newsletter

## REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable.

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February 15, 1997

## FCC Extends Amateur Service RF Safety Compliance Date

The FCC has finally released the text of their *First Memorandum Opinion and Order* amending the transition period for applicants and station licensees who must determine their compliance with the new RF exposure safety requirements. New Section 97.13(c) of the rules requires a "...routine RF radiation evaluation if the transmitter power exceeds 50 watts peak envelope power...."

For most radio services, the FCC extended the transition period by eight months, until September 1, 1997. For the Amateur Radio Service, the transition period for amateur radio operators has been extended until January 1, 1998. The FCC said "We also are allowing changes to amateur radio operator license examinations to be made as the examinations are routinely revised between now and July 1, 1998." That is the date that the last of three examination elements is scheduled to be implemented.

The Commission said they believed "...that these extensions are necessary so that our applicants and licensees will have adequate time to understand the new requirements and ensure that their facilities are in compliance with them."

### Background of the proceeding

The *National Environmental Policy Act of 1969* (NEPA) requires agencies of the Federal Government to evaluate the effects of their actions on the quality of the human environment. To meet its responsibilities under NEPA, the Commission has adopted requirements for evaluating the environmental impact of its actions. One of several envi-

ronmental factors addressed by these requirements is human exposure to RF energy emitted by FCC-regulated transmitters and facilities.

In 1985, the Commission adopted rules for evaluating the environmental effects of RF electromagnetic fields produced by FCC-regulated transmitters. On August 1, 1996, the FCC adopted the *Report and Order* in this proceeding which amended those rules by providing for the use of new, generally more stringent guidelines and methods.

The FCC said, "After considering the comments and the impact of the new requirements, we concluded that the new requirements would apply to station applications filed after January 1, 1997."

Seventeen petitions for reconsideration and/or clarification, as well as a motion for extension of the effective date, were filed in response to the *Report and Order*."

### Discussion of the issues

The American Radio Relay League (ARRL) and several others asked that the transition period be extended beyond January 1, 1997, arguing that the existing transition period does not allow adequate time for affected parties to achieve compliance with the new RF evaluation requirements.

"The ARRL requested that we provide a reasonable transition period for compliance with the requirements adopted in the *Report and Order* regarding amateur operator license examinations and question pools. The ARRL says that it would be impossible for the thousands of volunteer



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examiners to comply with those requirements, which went into effect immediately, absent a transition period.

"Our new rules require that at least five questions on the examinations for Elements 2, 3(A), and 3(B) must be related to 'radiofrequency environmental safety practices at an amateur station.' The new rules also require that the total number of questions on the examinations for Elements 2, 3(A), and 3(B) be increased.

"Based on the new rules, the question pool for Element 2 examinations would need to include 350 questions, while the question pools for Element 3(A) and 3(B) examinations would need to include 300 questions.

"The practical problem, according to the ARRL, is not the number of questions in each question pool related to RF environmental safety practices, but rather that the examinations now in circulation do not contain the requisite total number of questions, and the present Element 3(A) and 3(B) question pools, slated for revision in the near term, do not contain at least 300 questions.

"The ARRL requested that we delay the implementation date for increasing the number of questions on the Element 2 and 3(A) examinations to July 1, 1997, and that we delay the implementation date for increasing the number of questions on the Element 3(B) examinations to July 1, 1998, in order to coincide with the current schedule for the routine revision of the question pools."

## FCC Decision

The FCC agreed saying "We are extending the transition period so that the new RF guidelines will apply to station applications filed after September 1, 1997. When we adopted the *Report and Order*, we anticipated that it might cause difficulties for certain applicants to have to determine compliance with the new RF guidelines by January 1, 1997. Accordingly, we gave delegated authority to our Bureaus to extend this transition period on a case-by-case basis. It would also allow applicants to review the revised Bulletin 65 and to make the necessary measurements or calculations to determine that they are in compliance.

"We are also extending the transition period to January 1, 1998, for amateur operators to come into compliance with the new requirements. We see merit in the arguments expressed by the ARRL that, due to the uniqueness of the Amateur Radio Service, additional time is needed to ensure compliance. In particular, we note that amateur stations can use a wide variety of equipment and antennas, and this can make it very difficult to determine whether excessive RF electromagnetic fields may be produced by individual stations.

"Furthermore, all amateur radio stations in the past had been categorically exempt from these regulations, and many amateur operators may not be familiar with the new requirements and may need additional time to determine how to perform correctly a routine environmental evaluation.

"This extended transition period for amateur opera-

tors will have the advantage of allowing our staff ample time to work with the amateur radio community to refine and issue a special supplement to Bulletin 65 for the specific use of amateur operators.

"With respect to amateur operator license examination requirements, we agree with the arguments raised by the ARRL. The volunteers recently released revised versions of two of the pools which contain the required questions.

"Teachers and publishers are currently incorporating the new material into training manuals and courses for use by those preparing to take the examinations starting July 1, 1997. Work is also underway to similarly revise the third and final question pool for use starting July 1, 1998. (See next page for the new Element 3B syllabus)

"We are, therefore, staying the enforcement of the new examination provisions adopted in the *Report and Order* in the amended Section § 97.503(b) to July 1, 1997, with respect to Element 2 and 3(A) examinations and to July 1, 1998, with respect to Element 3(B) examinations.

## Final Regulatory Flexibility Analysis (FRFA)

"The American Radio Relay League, Inc. (ARRL), points out that we did not consider in the original FRFA the impact that new amateur operator license examination requirements would have on the ARRL and other Volunteer Examiner Coordinators (VEC), which the ARRL alleges should be treated as small business entities. The ARRL expresses particular concern that the new rules, which were effective immediately, required that additional questions be added to the amateur operator license examinations.

"In our original FRFA, we did not analyze the possible impact and burden on Amateur Radio Service (ARS) VECs. The ARRL has commented that our original FRFA is flawed because it fails to address the impact of the rules on small business entities such as itself and one other VEC. The Commission has not developed a definition for a small business or small organization that is applicable for VECs.

"The RFA defines the term 'small organization' as meaning 'any not-for-profit enterprise which is independently owned and operated and is not dominant in its field...' Our rules do not specify the nature of the entity that may act as a VEC. However, all of the sixteen VEC organizations would appear to meet the RFA definition for small organization. Consequently, we have now analyzed the burden associated with this action on VECs.

The VECs coordinate the activities of the VEs who prepare and administer the Commission's amateur operator license examination system. The administering VEs prepare written examinations using questions drawn from common question pools.

The VEs also prepare the questions for the question pools which are maintained by the VECs. The



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questions in the pools are updated and revised periodically. In the *Report and Order*, we required that new examination questions on RF safety be added to the examinations. That requirement was made effective immediately. In response to the *Report and Order*, the ARRL filed a petition requesting that we allow the examinations to be modified according to the VECs' normal revision schedule.

"We are adopting such an implementation plan into this *First Memorandum Opinion and Order*. As a result, the VECs can proceed with their normal schedule for soliciting questions from the VEs and revising the question pools. The VECs, therefore, will have a minimum burden in meeting the new requirements."

## NEW ELEMENT 3B QUESTION POOL SYLLABUS

On February 1, 1997, Ray Adams, W4CPA (Chairman of the VEC's Question Pool Committee) released the following revised syllabus (outline) for the Element 3B question pool. Adams also requested that the amateur community submit suggested questions (until June 30, 1997) on the subject matters indicated from which the Question Pool Committee (QPC) will compile a new Element 3B question pool. Copies to all four QPC members is strongly recommended.

"The new question pool will be put into public domain in magnetic format December 1 followed by a printed hard copy by surface mail on January 1, 1998. We hope new study guides will be on the bookshelves by May 1, 1998," Adams said. The new pool will be the basis for all General Class license examinations administered on or after July 1, 1998.

The QPC continues to use two changes to the question pools, that were announced with the syllabi for Novice and Technician pools two years ago, namely:

1. The syllabi and the questions to follow will observe a totally revised and hopefully simplified numbering system, and;
2. The pools will be compiled in such a way that a proper examination can be designed without reference to any schematic, drawing, symbol or other visual support. (This is to accommodate blind test applicants.)

The syllabus has intentionally been left generalized in wording to allow room for maneuvering subject matter within the presented terminology, should it prove desirable. The QPC finds no significant problem with the syllabus on which the question pool now in use is based, with the exception that topic G4E [presently RF safety] is to be replaced by an entirely new subelement, as RF safety is now the required contents of an entirely new subelement "RF Safety.". This causes new material to be needed for the hole so created by vacating the topic that was RF safety.

By using slightly more than ten times the number of questions required in each subelement, we will have left room for a preparing VE to omit a question or two with which he disagrees and still have a reasonable universe from which to design a test.

## SYLLABUS for use in drafting

Element 3B - General Class license exam questions  
which will be released  
into public domain December 1, 1997

### SUBELEMENT G1 -- COMMISSION'S RULES

[4 exam questions - 4 groups]

- G1A General control operator frequency privileges; local control, repeater and harmful interference definitions, third party communications
- G1B Antenna structure limitations; good engineering and good amateur practice; beacon operation; restricted operation; retransmitting radio signals
- G1C Transmitter power standards; type acceptance of external RF-power amplifiers; standards for type acceptance of external RF-power amplifiers; HF data emission standards
- G1D Examination element preparation; examination administration; temporary station identification

### SUBELEMENT G2 -- OPERATING PROCEDURES

[3 exam questions - 3 groups]

- G2A Phone, RTTY, repeater, VOX and full break-in CW
- G2B Operating courtesy, antenna orientation and HF operations, including logging practices; ITU Regions
- G2C Emergencies, including drills, communications and amateur auxiliary to FOB

### SUBELEMENT G3 -- RADIO WAVE PROPAGATION

[3 exam questions - 3 groups]

- G3A Ionospheric disturbances; sunspots and solar radiation
- G3B Maximum usable frequency, propagation "hops"
- G3C Height of ionospheric regions, critical angle and frequency, HF scatter

### SUBELEMENT G4 -- AMATEUR RADIO PRACTICES

[5 exam questions - 5 groups]

- G4A Two-tone test; electronic TR switch, amplifier neutralization
- G4B Test equipment: oscilloscope; signal tracer; antenna noise bridge; monitoring oscilloscope; field-strength meters
- G4C Audio rectification in consumer electronics, RF ground
- G4D Speech processors; PEP calculations; wire sizes and fuses
- G4E Common connectors used in amateur stations: types, when to use, fastening methods, precautions when using; HF mobile radio installations; emergency power systems, generators, "gibson girl" (we'll choose a better name, perhaps), battery storage devices and charging sources including solar, wind generation [perhaps the committee will decide on different topic(s) as the pool is being revised]

### SUBELEMENT G5 -- ELECTRICAL PRINCIPLES

[2 exam questions - 2 groups]

- G5A Impedance, including matching; resistance, including ohm; reactance, inductance, capacitance and metric divisions of these values
- G5B Decibel, Ohm's Law, current and voltage dividers, electrical power calculations and series and parallel components, transformers (either voltage or impedance), sine wave root-mean-square (RMS) value



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## SUBELEMENT G6 -- CIRCUIT COMPONENTS

[1 exam question - 1 group]

G6A Resistors, capacitors, inductors, rectifiers and transistors, etc.

## SUBELEMENT G7 -- PRACTICAL CIRCUITS

[1 exam question - 1 group]

G7A Power supplies and filters; single-sideband transmitters and receivers

## SUBELEMENT G8 -- SIGNALS AND EMISSIONS

[2 exam questions - 2 groups]

G8A Signal information, AM, FM, single and double sideband and carrier, bandwidth, modulation envelope, deviation, overmodulation

G8B Frequency mixing, multiplication, bandwidths, HF data communications

## SUBELEMENT G9 -- ANTENNAS AND FEED LINES

[4 exam questions - 4 groups]

G9A Yagi antennas - physical dimensions, impedance matching, radiation patterns, directivity and major lobes

G9B Loop antennas - physical dimensions, impedance matching, radiation patterns, directivity and major lobes

G9C Random wire antennas - physical dimensions, impedance matching, radiation patterns, directivity and major lobes; feedpoint impedance of 1/2-wavelength dipole and 1/4-wavelength vertical antennas

G9D Popular antenna feed lines - characteristic impedance and impedance matching; SWR calculations

## SUBELEMENT G0 -- RF SAFETY

[5 exam questions - 5 groups]

G0A RF Safety Principles

G0B RF Safety Rules and Guidelines

G0C Routine Station Evaluation and Measurements (FCC Part 97 refers to RF Radiation Evaluation)

G0D Practical RF-safety applications

G0E RF-safety solutions

Please forward any suggested Element 3B license examination questions to all four QPC members. They are:

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## AMATEUR RADIO STATION CALL SIGNS

...sequentially issued as of the first of February 1997:

Radio District	Group A Extra	Group B Advanced	Group C Tech/Gen.	Group D Novice
0 (*)	AB0EA	KI0GK	(***)	KB0ZNG
1 (*)	AA1RN	KE1GZ	N1YMX	KB1CBZ
2 (*)	AB2DA	KG2KA	(***)	KC2ATT
3 (*)	AA3PH	KE3YR	N3YQT	KB3BRS
4 (*)	AF4AN	KU4BK	(***)	KF4OSW
5 (*)	AC5LD	KM5GM	(***)	KC5YTK
6 (*)	AC6ZQ	KQ6MQ	(***)	KF6ITH
7 (*)	AB7UB	KK7EX	(***)	KC7UJG
8 (*)	AB8ZB	KI8AT	(***)	KC8FXV
9 (*)	AA9TS	KG9JC	(***)	KB9PLN
N. Mariana	NH0A	AH0AW	KH0FS	WH0ABF
Guam	(**)	AH2DC	KH2RJ	WH2ANR
Hawaii	AH7M	AH6PA	KH7CO	WH6DDJ
Amer.Samoa	AH8O	AH8AH	KH8DC	WH8ABF
Alaska	(**)	AL7QT	KL0DL	WL7CUC
Virgin Is.	WP2Z	KP2CK	NP2JP	WP2AIH
Puerto Rico	KP3V	KP3AP	NP3JX	WP4NMU

\* = All 1-by-2 & 2-by-1 call signs have been assigned.

\*\* = All 2-by-1 call signs have been assigned.

\*\*\* = Group "C" (N-by-3) call signs have now run out in all but the 1st and 3rd call district.

**Note:** New prefix numerals now being assigned in Puerto Rico (KP3/NP3), Hawaii (AH7/KH7) & Alaska (KL0)

[Source: FCC Database, Washington, D.C.]

## NEW AND UPGRADING AMATEUR STATISTICS

FOR THE MONTH OF JANUARY 1997

Amateur License Class	New Amateurs 1997	Upgrading Amateurs 1997	Total Amateurs 1997
Novice	59	7	66
Technician	1362	24	1386
Tech Plus	101	268	369
General	26	303	329
Advanced	4	239	243
Extra Class	1	174	175
Club/Unknown	*416	*23	*439
<b>Total:</b>	<b>1969</b>	<b>1038</b>	<b>3007</b>

**Note:** \* = We do not know how 416 "New" and 23 "Upgrading" amateurs showed up in this category. These were new Amateur stations (Form 610 code 4A) and upgrading Amateurs (Form 610 code 4B) who were shown in the database for January 1997 without a license class. Usually these are club and/or military recreation stations. The amount, however, is far too high and club stations can not appear as an "Upgrade." We suspect that there is some sort of an error in the database which will have to be corrected.

■ **Need an updated Part 97 Rule Book?** Feb. 1997 edition available from W5YI Office. (\$3.95 postpaid.)

Submission by electronic mail is **STRONGLY** preferred. Questions should be a maximum of 240 characters (including spaces); the multiple choices: a maximum of 120.



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## EMERGING TECHNOLOGY

■ **Get ready for DVD players and DVD-ROMs. The Digital Video Disk now is being called the Digital Versatile Disk** because it can be used for other data forms. DVDs look like CDs but can deliver up to an hour and a half of video as opposed to 74 minutes of CD audio.

Distribution of DVD movies (cost \$20 to \$50) was held up because of a lack of copy protection. That has now been solved and a major rollout of titles is planned for this Spring. DVD video and audio quality is far superior to VHS (analog) tapes.

It is predicted that sales of DVD-ROM drives for PCs (which can also read currently available CD disks at 10X speeds) will surpass CD-ROM drives by the year 2000! Microsoft plans operating system support for DVD-ROM drives this summer.

DVD disks can hold about seven times as much data as CD-ROMs. Initial cost will be around \$500, but should drop to about \$300 by fall. Future generations will be recordable.

Toshiba, Sony, Panasonic, Pioneer, Samsung, Yamaha, Sanyo, Magnavox and RCA all will have DVD players available this year.

## COMPUTER INFO

■ **Apple Computer says it will lay off another 3000 employees** in the wake of a \$120 million quarterly loss (The 1996 total loss was \$816 million). It cut 1,500 jobs last year. Macintosh shipments are down 30% and Apple's global market share is now 5.2%, down from 7.9% in 1996. Apple co-founders, Steven Jobs and Steve Wozniak are now both back at Apple and have been appointed to the decision-making Executive Committee. Jobs was ousted from Apple in 1985. We also heard that Microsoft's Bill Gates was huddling with Apple CEO Gilbert Amelio.

■ **PCS with TV tuners! Look for television programming and computers to be used more together.** The major computer, software, cable and broadcasting companies are gearing up for it!

Motorola recently invested in WorldGate Communications, an **Internet TV service which lets cable operators deliver the Web without a phone line.** Their high speed CyberSURF cable modem operates over existing fiber/coax cable lines

using an unused portion of the TV signal, the vertical blanking interval.

■ **High-speed (56 kilobits per second) modems by U.S. Robotics are hitting dealer shelves!** The new "x2 technology" is being installed by many Internet and online service providers. Be aware that two different "x2" formats are available ...one by U.S. Robotics, the other by Rockwell International Corp. Both are being rushed to market in hopes that their version will set the 56K standard. In any event, be sure you find out which technology your service is using because they are not compatible!

■ **I have no idea why, but a new handheld chicken video game craze has hit Japan!** Tamagotch (or cute little egg) is a key-chain computer game that begins when the egg hatches and a chick is born. The owner uses buttons to feed, play with, discipline and even clean up after the chicken. Already half a million have been sold!

## INTERNET NEWS

■ **On February 17, Sony Corp. of America plans to launch a major interactive entertainment website called "The Station."** It will feature online games, audio clips, digital music, radio and TV show tie ins ...including soap operas. General Motors, American Airlines, Visa International, Sears Roebuck and other big name advertisers will participate. One online game (called "Battleground") will accommodate 1000 players simultaneously! (<http://www.sony.com/SCA/station/>).

■ **The America Online consumer service went to an unlimited pricing policy in December to be more competitive with the \$19.95 that Prodigy, AT&T WorldNet, Netcom, IBM Internet, GTE, InternetMCI and the Microsoft Network were charging.** (Netcom recently announced that they were discontinuing flat rate pricing late this month.)

When AOL announced the "all-you-can-eat" flat-rate pricing, another half-a-million new subscribers immediately signed up and the 7 million existing users doubled their online usage time. The result, as you all have heard by now, has been wall-to-wall busy signals. No one could sign on; AOL's 200,000 modems were swamped.

Another 150,000 connections are in the process of being added and AOL's sales promotion campaign has temporarily been put on "hold."

Lawsuits have forced AOL to refund

up to \$39.90 to those who could not sign on ...potentially a massive \$20 million penalty. The multi-state settlement called for users to contact AOL to apply for their refund or to cancel. Again, the fax (1-801-622-7969) and phone lines (1-800-827-6364) quickly jammed. It will be many months before they fully recover.

In November, AOL reported a \$350 million net loss caused by making current its long-standing accounting practice of deferring its cost to obtain new subscribers.

■ **MCI has introduced a new product that lets customers use their PC to surf the Internet while making telephone calls** at the same time over the same phone line. One application is that it will allow users to click on a phone number contained at a website to order goods or obtain additional information. AT&T also has a similar gadget in the works.

■ **The best e-mail package for Windows-95? It is Eudora Pro 3.0!** We have tried several. Eudora has solved the problem of how to send a file across different platforms. It never "drops" the attachment and URLs contained in a message become hot links directly to the Internet. Message routing, sorting, and searches are a breeze! List price is \$89, but we paid \$59 at CompUSA. Also available from Qualcomm at 800/238-3672.

■ **Microsoft and DirecTV are set to offer the Web at lightning speed to home computers via direct broadcast satellite.** Connection will be to the PCS serial port at a cost of \$19.95 a month to DBS subscribers. The 30 mps downlink transmission speed will permit full motion video.

## WASHINGTON WHISPERS

■ **The Supreme Court will begin deciding the fate of the Communications Decency Act next month.** On February 8, 1996, Pres. Clinton signed the CDA legislation into law which criminalizes indecent and offensive computer network information that can be viewed by a minor. A Philadelphia federal court agreed with an ACLU challenge and blocked the Internet censorship law from taking effect last Spring. A ruling is expected in July.

■ **Ace Communications of Fishers, Indiana has been socked with a \$20,000 fine for marketing scanning devices ("scanners")** without first obtaining an FCC equipment authorization.



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At issue were two types of scanners that tune into the cellular telephone frequencies. The Communications Act prohibits the FCC from issuing equipment authorizations for this type of scanner. One of the scanner models even bore a misleading FCC identification number.

Ace argued that, because the Communications Act and the Commission's rules do not contain the term "marketing," the FCC could not issue a fine based on such a violation. The Bureau rejected this argument and ordered Ace to pay the full amount of the monetary forfeiture within 30 days. (*Notice of Forfeiture, 2/4/97*)

■ **The "President's Commission on Critical Infrastructure" is seeking the public's help** to find ways to combat cyber-terrorism. The nation's "life support systems" such as telecommunications, electric power distribution, banking, government ...even local emergency services depend upon advanced computer systems which are becoming increasingly vulnerable to vandalism and malicious hackers. The agency is scheduling hearings this Spring and Summer in major U.S. cities.

Separately, a University of California-Berkeley graduate student won a \$1000 data encryption company challenge and cracked a 40-bit code by lashing 250 workstations together. It took him 3-1/2 hours to break the code by inputting 100 billion possible "key" combinations per hour.

■ A coalition of Internet software firms (which includes Microsoft) has **asked the FCC to rule on a May 1996 ACTA (America's Carriers Telecommunication Association) request to ban Internet telephony.** ACTA (a telephone company trade group) wants phone calls over the Internet without paying long distance fees outlawed. Internet telephony is currently not subject to tariffs or regulation.

Telcos are concerned that a new narrowband audio codec (G.723.1) compression standard supported by Microsoft and Intel will allow high quality free audio and picture-phone calls.

Lucent Technologies (a spin-off from AT&T) also has a new gateway product that permits local phone callers to make long distance calls over the Internet without originating them from a PC.

And low cost (\$299 to \$399) PC-based consumer video-conferencing products are coming on the market which allow one-on-one Internet video chat. You simply select from a list of people online ...sort of like video DX ham radio. There are even "R" and "X" ratings for those who

wish more than a casual conversation.

■ **Effective February 1<sup>st</sup>, the FAA began putting airline safety information on its website** at <http://www.faa.gov>. You can now find out which airlines have had near collisions, accidents, serious injuries, safety/security violations and major enforcement fines. Previously it took a Freedom of Information Act (FOIA) request to get the information.

■ Following an eight month undercover operation, **the FBI unleashed a massive cyber-strike against software pirates last month** who were selling illegal software copies through Internet sites and computer bulletin boards. It seized computer hardware and records in Georgia, Florida, Oklahoma, Pennsylvania, Ohio, Iowa and California. No arrest warrants have yet been issued. Software piracy costs the software industry billions of dollars a year!

■ Is airborne passenger Internet on the way? **Motorola has filed an application with the FCC to modify its Iridium system license** (*See Jan. 1, 1997, W5YI Report, page 6*) to include aviation flight safety and a full complement of passenger voice, data and facsimile services. When operational, Iridium will offer a satellite-based global telecommunications network using 66 interconnected satellites in low earth orbit.

■ **The FCC will shortly be looking for more Commissioners - both Republican and Democrat.** We have heard many names being tossed around ...including frontrunners William Kennard (FCC General Counsel), David Baker (Georgia Public Service Commission Chairman), and Michael Powell (son of retired general Colin Powell.) Also in the running are Earl Comstock (a Senate aide), Julia Johnson (an African-American attorney) and House Committee economist, Harold Furchtgott-Roth. Gina Keeney (Common Carrier Bureau Chief) has voluntarily dropped out of the running.

## AMATEUR RADIO

■ We got an e-mail message from Tony Smith, G4FAI (Norfolk, England) containing a January 31<sup>st</sup> press release from Britain's Radiocommunications Agency (RA).

In May 1998, the RA will be **combining the two parts of their Radio Amateurs' Examination (RAE) into a single 80 question examination.** The cost for the revised RAE is 26 pounds

(about \$40). Each part previously cost 19.40 pounds (\$30.00). "It is hoped that this change will encourage more people to take up amateur radio."

"In Britain, a pass in the RAE is required to obtain a Class B license and an additional 12 words per minute Morse test is required to obtain a Class A license. Class A provides access to all amateur frequencies while Class B restricts access to frequencies above 30 MHz."

"The RAE is administered at centers across the UK by the City and Guilds of London Institute on behalf of the Radio-communications Agency. The Morse test is carried out on behalf of the Agency by the Radio Society of Great Britain."

■ **The North American Digital System Directory (NADSD) will now be maintained by the Tucson Amateur packet Radio Corp. (TAPR.)** Up until now, information on amateur digital systems had been printed in the ARRL Repeater Directory. The 1997-1998 edition will no longer contain this information. The Digital System Directory will be based on information provided by regional, state and local organizations and distributed on CD-ROM as well as some future publication. It is also available on the TAPR website at <http://www.tapr.org/directory>.

■ **Vanity Call Sign Report:** At this writing (February 7) the FCC still has not begun issuing any Vanity Call Sign requests that were made during December, January or February. They will not process the December applications until those that hit the "error list" in November are handled.

The FCC is about half way through the November "WIPs" (the "error list" is officially called "Work-In-Progress" ...or WIPs.) Once these are handled, then the December Vanity Call Sign applications will be run. Once that happens, then they will begin work on the December Vanity applications that hit WIPs.

There were 479 paper and 466 electronically filed Vanity Call Sign applications received during January 1997. We were told that it is still unknown when Gate No. 3 will open to the Advanced Class.

■ One of our French correspondents (Marcin F8AQR) advises that the **European Conference of Postal and Telecommunications Administrations is in the process of adding a European Class 3 CEPT license** which will be some sort of beginner's license. Classes 1 and 2 are "normal" licenses, with and without code, and with and without the right to transmit below 30 MHz.



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## FCC FORUM REMARKS AT MIAMI HAMBOREE

The 1997 Tropical Hamboree and ARRL South-eastern Division Convention was held in Miami, Florida on February 1 and 2. FCC's John B. Johnston, W3BE hosted the FCC forum held on Saturday. He started out by reminding those in attendance that he is from the Wireless Telecommunications Bureau in Washington, DC.

"I am not with the Compliance and Information Bureau, which handles enforcement matters ...or the Office of Engineering and Technology -- which administers the RF safety and frequency allocation matters -- nor with the International Bureau -- which administers the World Administrative Radio Conference.

"I remind you of that because frequently some of you send me inquiries and correspondence about matters that are administered by those bureaus. I am in the Private Wireless Division which is concerned with policy and rules for the public safety and private radio services."

## International Amateur Radio Operation:

"We now have your comments to the Notice of Proposed Rule Making in PR Docket 96-188. It proposed to implement two pending international reciprocal operating arrangements that should make it easier for U.S. amateur operators to operate stations temporarily in twenty-two European countries, eight South American countries, Mexico, and Honduras.

"The pending arrangements are the European Conference of Postal and Telecommunications Administrations (CEPT) radio-amateur license and the Inter-American Convention on an International Amateur Radio Permit (CITEL/Amateur Convention).

"It appeared that U.S. participation in both the CEPT Agreement and the CITEL Convention would benefit those of you who travel to Europe and to the Americas, as well as foreign amateur operators visiting places where the amateur service is regulated by the Commission. It would be for foreign visitors on business trips and vacations, tourists and persons attending conferences, as well as students and visiting professors.

"The Notice asked for your comments on the proposal to authorize operation up to 180 days within the immediately preceding five years. This would benefit foreign amateur operators who make several short-term visits to the United States during the five years, as well as those who make but a single visit.

"During such short-term visits, station operation by a foreign visitor would be of a relatively simple nature probably using a hand-held or mobile transceiver. The Notice asked you to comment on whether foreign visitors with CEPT radio-amateur licenses and IARPs can operate amateur stations properly under our rules during such short-term visits, based upon the underlying licenses that they hold from their own country.

"There are two classes of CEPT radio-amateur licenses and IARPs. Your comments were requested as to the frequency privileges that should be authorized to each class.

"Class 1 requires knowledge of the international Morse code and carries all operating privileges. It is, therefore, most similar to your Amateur Extra Class.

"Class 2 does not require knowledge of telegraphy and carries all operating privileges above 30 MHz. It is, therefore,

most similar to your Technician Class operator license.

"Another issue you were asked to address was whether the operation should be authorized by rule rather than by the grant of a license or permit.

"The FCC would not be collecting and disseminating the information. We have no objection, however, to you doing so. Widespread access to information of the authorization status of transmitting stations promotes self-policing and discourages unlicensed stations from operating on the amateur service bands.

## Expanding Spread Spectrum Capability

"The League also petitioned the FCC to permit you to expand your spread spectrum activity. Your interest in the frequency sharing potential for spread spectrum technology goes back more than 40 years. That is not surprising because you need to work out ways that allow you to best share your spectrum.

"In 1981, Special Temporary Authority to experiment with spread spectrum was granted to 25 amateur stations. Last Fall, another STA was granted to a group of amateur stations for spread spectrum experimentation.

"In RM-8737, the League asked for authorization to transmit using additional spreading sequences. It requested that each spread spectrum transmitter be required to incorporate a device to automatically limit its power to that actually necessary to carry out the communications.

"It claims that these rule changes would facilitate the ability of your radio service to contribute to the development of communications, while protecting your bands against exploitation by persons at unlicensed stations.

"In response to the Public Notice announcing your petition, we received 32 comments and reply comments. Some commenters oppose spread spectrum out of concerns that it will result in interference to stations using narrow-band emission types for engaging in satellite communications, weak signal communications and repeaters.

"The majority of commenters, however, support additional spread spectrum communications because of the benefits that may come from experimentation, but suggest that it be confined to specific spectrum segments to protect stations engaged in other types of communication.

"In reply, you argue that the interference potential would not significantly increase because the rules already authorize spread spectrum on frequencies now used for those purposes.

"Also, you point out that concern for repeaters is unfounded because your request does not include the frequency segments where most repeater usage occurs.

"There may be a Notice of Proposed Rule Making for you to contemplate and place your comments on the public record. So it's not too early for you to start discussing this amongst yourselves.

## Preemption of non-federal restrictions on antennas

"Several of you have inquired if the new Telecom Act covers your amateur station antennas. The answer is "no." The Act contains no provisions for your amateur station antennas. It does, however, direct the FCC to preempt non-federal restrictions on certain direct-to-home video services. In passing this law, Congress believed that local restrictions were preventing viewers from choosing the various television services.

"The League has filed a petition for rule making, RM-8763, asking for clarification on the following:

- That the role of local governments and municipalities in



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applying the preemption policy is to make reasonable accommodation for amateur operators, rather than to balance their own local interests against the Federal interest;

- That an antenna height of 60 to 70 feet is the minimum height that is a reasonable accommodation for amateur service communications;
- That excessive costs for conditional use permits or hearings thereon, or for engineering certifications, are deemed to be the functional equivalent of a prohibition of amateur antennas and, thus, are preempted. That overly burdensome conditions in conditional use permits, such as total screening of the antenna where the cost of compliance approaches the cost of the antenna installation, are also preempted for the same reason;
- That denial of a particular use permit or special exception does not relieve the municipality of the basic obligation to make a reasonable accommodation for amateur communications;
- That conditional use procedures are only an adjunct to a minimum permitted antenna height; and
- That restrictions on antennas that are unreasonable, such as setbacks, should be preempted where less-burdensome restrictions can be used, such as retractable antennas.

"Your petition is under study.

## The new RF Exposure Safety Guidelines:

"Last summer, the Commission adopted new guidelines and methods for evaluating the environmental effects of RF radiation from FCC-regulated transmitters. "They are in the Report and Order in ET Docket No. 93-62. The "ET" means that the responsibility for its preparation was in the Office of Engineering and Technology.

"For some 28 years, Federal agencies have been required to evaluate the effects of their actions on the quality of the human environment. In 1985, the Commission adopted rules requiring applicants for broadcast stations and satellite uplinks to prepare an Environmental Assessment where the general public or workers might be exposed to high levels of RF radiation. The basis for these rules were RF protection guidelines adopted by the American National Standards Institute.

"Your stations were excluded from these requirements along with certain low-power, intermittent or normally inaccessible stations.

"Some of you, however, took RF safety seriously. You developed and shared information. You formulated your program of 'prudent avoidance.' Articles appeared in QST and your Handbook. You added questions on RF safety to your exam question pools.

"In 1992, based upon new guidelines issued by the Institute of Electrical and Electronic Engineers, the ANSI adopted new guidelines. The FCC's 1993 proposal was to revise the rules based upon the new guidelines.

"In your current Handbooks, there is a graph of the IEEE guidelines. As you may recall, it indicates that the greatest protection is needed between 30 and 300 MHz. That takes in your ten, six, two and one and 1/4 meter bands.

"Over 100 comments were filed including those from the Environmental Protection Agency, the Food and Drug Administration and other federal health and safety agencies as well as the public sector. From the amateur community, your League and others filed comments.

"There are numerous variables to be considered in determining whether an amateur station complies with guidelines for

environmental RF exposure.

"Over 712,000 of your stations are licensed to transmit from any place where the FCC regulates the service, as well as on the high seas. Your stations do not require pre-approval. You don't need permission to move your station or to add additional stations at the same or other locations.

"The granting of your license is conditioned upon your demonstrating to your peers that you have the operational and technical qualifications required to perform properly the duties of an amateur operator in the United States under the FCC rules that you have participated in formulating.

"Your stations are located practically anywhere and everywhere. They are in dwellings, in airplanes, on ships and space craft. They are even carried on your person.

"Many of your stations transmit from residential or other areas where your families, friends and neighbors may be in close proximity to the RF radiation source.

"Your station transmissions are usually made intermittently and may involve as many as 1,300 different emission types -- each with a distinctive on-off duty cycle.

"Finally, most of you only engage in two-way communications. Even when in operation, your station is usually transmitting but half of the time.

"In 1990, The FCC and the Environmental Protection Agency made measurements at several of your stations. It found that you may have some situations where excessive exposure could occur.

"Among yourselves there appears to be varying degrees of knowledge concerning the potential hazards of RF radiation. Your comments in the Docket -- to say the least -- were somewhat divided as to the proper course of action.

"The FCC concluded that, although it appears to be relatively small, there is a potential for amateur stations to cause humans to be exposed to radiation in excess of the guidelines.

- Your stations transmit with up to 1,500 watts on frequencies in specified bands from 1,800 kHz to over 300 GHz.
- Certain of your emission types -- particularly FM and PM -- have high duty cycles.
- Your stations are not subject generally to restrictions on antenna gain, antenna placement and other relevant exposure variables. Your antenna requirements are based upon aeronautical safety and protection of land of environmental importance or that is significant in American history, architecture or culture.

"Even though excessive exposure may be relatively uncommon, it is possible. Therefore, it was decided that the new guidelines must also apply to amateur stations.

"Starting next year, in some instance, you will be required to evaluate your station for compliance with the guidelines.

"First, no evaluation is required where your transmitter power is 50 watts or less. That is 50 watts RF peak envelope power at the transmitter output terminals.

"If you decide to run above 50 watts, you're going to determine if your station will cause an excessive level of RF power density in controlled and uncontrolled environments.

"An 'uncontrolled environment' is any location where your station causes RF exposure to persons who have no knowledge or control of it... your neighbors, for instance.

"A 'controlled environment' is a location where there are only persons who are aware of the potential for a certain level of exposure to RF radiation. This would apply to you, your immediate family and other persons in your home, your car or wherever you operate your station.

"Presumably, they would understand their situation. They could move out, jump out, or somehow convince you to stop



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operating the station in that manner.

"As pointed out in your Handbooks, the best most of you can do at present is to estimate the RF density around your station based upon measurements made at other stations or with computer modeling.

"If your station is not absolutely safe -- for you, for your family, your friends, and for your neighbors -- you want to know about it and you want to make it safe.

"The FCC adopted your suggestion for more questions on RF safety in your examinations. The FCC found it to be your duty to prevent your station from transmitting from any place where it could cause human exposure to levels of RF radiation that are in excess of the guidelines.

"The purpose of your license examinations, after all, is to prove that you can perform your duties properly at a station in the United States.

"You didn't waste any time. You came out with a new question pool, including RF safety questions, for your Element 2 written exam. You volunteer examiners are going to be asking five questions about the things the operator of every amateur station needs to know about basic RF safety. Your schedule is to start this summer.

"You also came out with a new question pool, including RF safety questions, for your Element 3(A) exam. You're going to be asking five questions about the things the operator needs to know about RF safety at your VHF and UHF stations.

"You are now working on a new Element 3(B) exam question pool. You're going to be asking five questions about the things the operator needs to know about RF safety at your MF and HF stations. Your schedule for that is the summer of 1998.

"The FCC also adopted your suggestion that all amateur operators be required to certify that they have read and that they understand the rules regarding RF safety and the OET Bulletin Number 65 at the time of filing a license application.

"Some of you are helping out with the preparation of the OET Bulletin. Please keep it simple!

"While I'm asking for your assistance, I want to put in a plug for your Question Pool Committee. In particular, those of you who have special expertise in any of the ten exam topics, please send questions for the QPC. They'll be glad to hear from you.

## Amateur Radio License Examinations

"This VEC Region 4 hosted the greatest number of examinations last year. There were 136,000 examination elements administered in 1996. Almost 20 percent of those were right here in VEC Region 4. Seven of the 16 VECs coordinated exams in this Region.

"You'll note there is a 'Region 14.' That is an unofficial region that I have added to the traditional 13. It is for the exams that you are administering in foreign countries.

"It is approaching two percent of the total, and exceeds the number administered in three of your regions: (13) Hawaii and the Pacific Insular Areas, (12) the Caribbean Insular Area, and (11) Alaska.

"The number of applicants that took their exams outside of the United States last year was 723. The VECs have told me that some of these persons are U.S. citizens who intend to return to this country. Some of the other persons are aliens who intend to visit the U.S. for an extended period.

## E-Mail the FCC...

"If you run into a question that you can't handle, you can send me an E-Mail. My address is: [jjohnsto@fcc.gov](mailto:jjohnsto@fcc.gov)"

## Astronaut Granted Permission to Ham It Up from Mir

US ham-Astronaut Jerry Linenger, KC5HBR, has been granted permission for general QSOs and scheduled school radio contacts with unlicensed students and a control operator.

Getting permission involved approval by authorities in the US, Russia and Germany. Miles Mann, WF1F, Director of Educational Services for the Mir International Amateur Radio EXperiment (MIREX), and Dave Larsen, N6CO, director of the MIREX board, signed an agreement on behalf of MIREX, while Sergei Samburov, RV3DR, chief of the Cosmonaut Amateur Radio Department, signed for the Mir Amateur Radio EXperiment (MAREX), and Joerg Hahn, DL3LUM, international coordinator, signed for the German Space Amateur Funk EXperiment (SAFEX) group, which provided the ham equipment aboard Mir.

The FCC also has given approval for Linenger (and for Astronaut Colin "Michael" Foale, KC5UAC--who will take Linenger's place in May) for general QSOs and third-party traffic with schools, family and friends. Linenger recently arrived on Mir via STS-81.

According to Mann, applications for US school QSOs with cosmonauts are approved by MIREX, based on specific guidelines, before being sent on to Samburov and SAFEX. "The Mir crews have busy work schedules, but our guidelines allow us to arrange--months in advance--school QSOs during crew off hours," he explained. The Cosmonaut Amateur Radio Department gives final approval for all QSOs and reserves the right to cancel at any time. Mir's daily experiments always have first priority over ham radio.

Because Mir crews now include a US astronaut, SAREX and MIREX have begun to work together. Currently the SAREX program has about 80 schools on its waiting list. To get a Mir school QSO application, send an SASE to Educational Activities Dept., ARRL, 225 Main St, Newington CT 06111. [ARRL Space Bulletin No. 3]

■ **An interesting article in the February issue of EDN (Electronic Design News)** by Jack Ganssle, N3ALO (Columbia, MD) tells about the demise of home brewing. "...ham radio, although still a popular hobby, is a victim of the electronics revolution. Most hams buy their equipment now, because it's just too hard to build your own. Years ago, we worked on trivially simple AM gear. Today, SSB and FM dominate; both require much more sophisticated receivers and transmitters -- equipment far beyond the construction abilities of the average teenage wannabe. A decent radio is expensive enough to be a barrier to young folks; and the act of purchasing, rather than building, limits the educational experience."

Jack says computers have followed a similar path. "Today, building a computer means bolting together a motherboard, disks, and other modules. There's neither opportunity nor need to learn about electronics. ...so our kids must turn to software. ...It is the last great area where they can make something that works..."



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## HAM OPERATORS DEVELOP SLICK NEWS SERVICE

*The Internet is changing from a "pull" to a "push" system!*

Instead of a surfer manually "pulling" wanted information from the Internet, PointCast automatically "pushes" (sends) filtered news and information from various wire services and daily newspapers to Intranets and directly to users' desktop through a direct Internet connection. It can be set to automatically get the latest news at certain intervals or by manually pressing the Update button. (You are only connected to the Internet during these updates.)

The founders, Chris (34, President and CEO) and Greg Hassett (30, VP, Engineering and Chief Technical Officer) are both ham radio operators. While in their late 20's, both qualified for KD6KWC (Chris, Cupertino, CA) and KD6KWB (Greg, Mountain View, CA) on the same day in 1992. That is also the year that they come up with the idea for PointCast, Inc.

Up until then, if you wanted to access a news web site or get information on a specific topic you had to access the appropriate URL (address) or use an Internet search engine. They hit upon the idea of establishing an Interactive site that lets the user automatically acquire, format and present customized news and other information through a specialized browser. It would be like creating your own private online service using data gathered from the Web. Once updated, the information can be read off line.

They called their concept, "pointcasting" - the ability to broadcast breaking news customized to the interests of each user. But unlike "broadcasting," "pointcasting" only delivers the news and information specified by the user. Their first product was named "Journalist."

Now five years later and financed by three of today's most successful technology venture funds, the service has evolved into the advertiser supported "PointCast Network." Revenues now also include subscribers. It is particularly popular among private corporate Intranets who are able to "broadcast" industry related news and information to their sites.

The concept is simple. PointCast's patent pending SmartScreen™ technology automatically runs off into the Internet to get the up-to-the minute information you want when your computer is idle or when you choose to update information from the Web.

The PointCast Network has been described as part CNN, part newspaper and part automatic web-browser. Once you have downloaded the free PointCast software (there are two versions, a mini and full blown version), PointCast takes over as your screen saver, with customized ticker tape stock prices, sports scores and rotating screens of news, weather and entertainment briefs. Users simply select "channels" of information that is arranged into themes, such as sports, weather, finance and fast breaking news.

The PointCast software is now available in retail outlets, is bundled with AT&T's WorldNet service or can

be downloaded free from <http://www.pointcast.com/>.

One of the advantages of America On-Line is that you not only get Internet access for \$19.95 a month, but a proprietary consumer service as well. With PointCast, you can develop your own. Privacy is respected. PointCast does, however, keep track of your interests on your own PC to enable targeted advertising. No information is collected from individual computers ...except the number of times each advertisement is "played."

PointCast's TV-style "push" method of distributing Web information has not gone unnoticed. Both the Microsoft Explorer and Netscape Navigator browsers will eventually be offering consumers the ability to "tune in" to user defined Web channels. And there could even be some sort of partnership with PointCast, Inc.

Now, other "push-type" technology interactive news gatherers are becoming available. InfoSage, Marimba and NETdelivery, like PointCast, require users to download large programs that can generally only access content from participating publishers which pay a fee.

"InfoSage" is an IBM news filtering application which offers the ability to collect industry specific news information based on key words. Users must visit their personalized Web page to get news updates, which occur twice a day and contain up to 30 articles. (Unlike the other free push-technology news gatherers, InfoSage costs \$24.95 month. (<http://www.infosage.ibm.com/>))

"Marimba" is a company started up by four Sun Microsystems employees. One of their software products ("Castanet") is a "tuner" which resides on a user's hard drive. Websites are fitted with a "transmitter" which updates the user with new data. The "tuner" is free ...but the "transmitter" software costs big bucks! (from \$1,000 to \$15,000) Both PointCast and Microsoft are considering using "Castanet" as a delivery system for its content. (<http://www.marimba.com>) NETdelivery delivers product information or customized Web content directly to customer's desktops. (<http://netdelivery.com>)

The "Digital Bindery" doesn't require the user to install software and lets him order up information from any site, not just those that have signed up with the provider. The Digital Bindery (which is also free) e-mails selected Web pages when they change, then launches a user's browser either online or offline to view the content. (<http://www.bindery.com>)

With "Crayon", instead of the "Daily Us" ...it is the "Daily Me." Crayon, which stands for **CReAtE Your Own Newspaper**, allows you to customize your own newspaper by piecing together sections from different web-based newspapers. (<http://www.crayon.net>)

"Adaptyx" affectionately known as "Rex" (a bespectacled, golden tyrannosaurus rex dinosaur) is an Internet news and information collector which can be "trained" to get what you want by telling it what you did and did not like. It does this by assigning a "personal (software) agent" to each individual whose job it is to rank the importance of words and phrases in an article to develop a user profile. (<http://www.daptyx.com>)